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Growth targets and students numbers in higher education

The Federal Government's higher education targets are likely to be very difficult to achieve unless Bachelor degree attainment of 25 to 34 year olds can increase at twice the rate of population growth, according to a research review paper by ACER Senior Research Fellow Dr Daniel Edwards.

In the fourth research briefing for the Joining the Dots series Dr Edwards examines the expansion of Australia's higher education sector and how this might affect student numbers.

In the paper, Expanding the sector: Growth targets and student numbers, Dr Edwards argues that the target of 40 per cent of 25 to 34 year olds in Australia holding a bachelor degree or above by 2025 could be made more difficult by recent changes to migration policies and the predicted fall in the number of international students studying in Australia.

Recent substantial growth in attainment levels of the 25 to 34 year old cohort has been a result of strong migration and the growth of international students rather than any domestically driven increase in provision.

"It is estimated that by 2025 a total of 1.47 million people aged 25 to 34 years olds, will need to have at least a bachelor level qualification if the 40 per cent attainment target is to be met," Dr Edwards writes.

"Australia will not reach these numbers through demographic change alone – the number of people with a bachelor degree or above in this age cohort will need to grow at twice the rate of natural population growth over the coming decade and a half."

Drawing on data from the Australian Bureau of Statistics, Edwards argues that the clear growth in attainment over the past decade cannot be attributed to increased participation of domestic students in higher education. Rather, it is more likely that growth in higher education attainment levels has been the result of a strong skilled migration program, focused on young migrants in professional occupations, alongside large increases in the number of international students studying in Australia.

"The role of domestic student expansion in Australia in achieving the Government's target of 40 per cent attainment over the long term is of paramount importance," Dr Edwards writes.

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An examination of research conducted by the Centre for Population and Urban Research (CPUR) and growth estimates from DEEWR indicate that the most serious growth in completion numbers will need to occur in the years between 2015 and 2021, with a required annual growth of five per cent and that actual numbers of domestic bachelor degree completions will need to increase from 100,000 in 2010 to 180,000 by 2025 – an 80 per cent growth in the sector.

“While initial growth may be on track, the challenge for the sector will be increasing the rate of growth and sustaining such increases until the beginning of the next decade,” Dr Edwards argues in the paper.

“The conclusion is that the estimates by DEEWR appear to follow the numbers in the CPUR scenario up until 2015, but from then onwards, there is a large and unknown gap in the following decade that needs to be filled.”

While it is clear that there is a substantial amount of growth required in the sector over the coming decade and a half, there are still many questions about provision and the practicalities surrounding the sustainability of such growth.

Joining the Dots is a subscription-based resource provided by ACER to those with an interest in Australian Higher Education. In 2011 the series includes eight research briefings, a monthly news and event digest and a webinar series. More detail can be found at www.acer.edu.au/jtd or by emailing .(JavaScript must be enabled to view this email address)

Beginning teacher standards in Saudi Arabia

Prospective teachers in The Kingdom of Saudi Arabia will soon have to demonstrate they meet benchmarks of teacher quality.

ACER is assisting the Saudi Arabian National Centre for Assessment in Higher Education (NCAHE) with the development of a framework for beginning teacher standards. The beginning teacher professional standards will describe the skills, knowledge and values necessary for effective teaching. The standards will be used to design assessment tools for the purposes of selection among teaching candidates and will determine training needs for accredited beginning teachers.

Prospective teaching candidates will have to show they can meet basic educational standards including knowledge of educational policies and rules in Saudi Arabia, pedagogy, assessment, child development and classroom management. They will also have to meet standards of basic Arabic language rules in reading, writing and grammar, standards of numeracy skills and standards of subject-specific content.

The first draft of the standards has been completed. It will be introduced to the reviewing committees in October 2011 through a symposium of educators, experts and practitioners, and will be published online for public review and comment. The symposium will also invite discussion about standards and their use within wider educational reform, including improving career paths for teachers, clearer long-term goals for professional development of teachers and accreditation. The outcomes of the symposium and public comments will be used to prepare a final draft of the standards framework, due for completion late 2011.

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Once established, the standards will be used to develop a framework to guide teaching and learning policies and a framework for teacher professional development. It is also envisaged that in-service teachers will eventually be assessed against professional standards.

The beginning teacher standards framework forms part of a larger project known as the King Abdullah bin Abdul Aziz Public Education Development Project (Tatweer). Tatweer aims to improve educational outcomes in Saudi Arabia by improving the inputs. Teachers are one such input. Tatweer seeks to reduce the enrolment of individuals who lack the educational competencies required in the teaching profession.

Under Tatweer, NCAHE is responsible for a Teacher Professional Standards and Assessment Tools Project. This project has four major components. The first component – developing the standards – will be developed every five years with the aim of modifying standards according to trends in educational research and practice. The remaining three components – developing tools, data management, and reporting – will be conducted annually.

Together, these four components represent significant educational reform in Saudi Arabia. By developing teacher professional standards and assessment tools, NCAHE will establish benchmarks for teaching quality, identify training needs for beginning teachers, evaluate outcomes of teacher preparation programs, support education reform that aims to enhance teaching and learning, and establish national indicators in relation to teacher professional development.

Further information about ACER's international projects is available from http://www.acer.edu.au/international/

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Monitoring the post-school destinations of students

It has long been acknowledged that what happens in the immediate post-school years can have important consequences for young people in making their transition to adulthood. The educational and occupational pathways of young people as they progress from school into further study, employment and adult life is therefore an important area for policy-makers and educators to understand.

Through a range of research projects, ACER has contributed to understanding the different pathways young people take from school to work and the key factors involved. With this knowledge, policy-makers and educators can assist young people to make successful transitions from school to further education and work.

One such example is the On Track post-school destinations survey, conducted by ACER and the Social Research Centre on behalf of the Victorian Department of Education and Early Childhood Development. On Track is an annual telephone survey, conducted in April and May, of Victorian school leavers from the previous year. 'School leavers' encompasses both Year 12 or equivalent completers, those who have completed a Victorian Certificate of Education (VCE), International Baccalaureate (IB) or Victorian Certificate of Applied Learning (VCAL, at Senior or Intermediate level), as well as early leavers, those who left school before completing any one of the afore-mentioned qualifications.

The survey encompasses leavers from government and non-government schools, as well as those who have done equivalent courses in TAFE colleges and adult education organisations. Around 40 000 leavers respond to the survey each year, and response rates generally exceed 80 per cent.

After all the data are collected and collated, ACER prepares tailored On Track reports that provide feedback to schools, Department regional directors, TAFE institutions, Local Learning and Employment Networks (LLENs), regional career development officers and local government authorities. The On Track annual report provides a statewide summary and detailed analysis of post-school destinations by different groups of leavers. The annual report is available from the Department of Education and Early Childhood Development website. The On Track data showing the main destinations of Year 12 completers are also included on ACARA's My School website for Victorian secondary schools.

One component of the project is the On Track longitudinal survey. This provides a more extensive picture of post-school pathways. A new longitudinal cohort comprised 2007 school leavers, who have been surveyed each year until 2011. ACER is currently analysing the data from these surveys and will report later this year on the destinations of these young people and the factors that have influenced their pathways.

A valuable feature of On Track is that it also offers a referral service for school leavers who appear to be experiencing difficulties in the transition process. The On Track Connect program consists of follow-up with national Youth Connections providers. In 2010 almost 2000 leavers accepted the offer of a referral.

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On Track has been conducted since 2003 and now provides nine years worth of data to review trends. For example, the survey of school leavers from the 2009 school year revealed that the percentage of people commencing a Bachelor degree in the year after completing school had reached its highest rate (49 per cent) since the survey began, while the percentage of Year 12 completers deferring a tertiary education place had declined for the first time (to 10 per cent). The results of the survey of 2010 school leavers, due to be published later this year, will allow further analysis of trends.

The information collected by On Track is used as a tool for guiding policy and practice at State, regional and school levels. For example, the Gippsland region in Victoria's East and South-east is currently seeking to improve post-school destinations for students, particularly in higher level vocational education and training and higher education. To inform the development of a Gippsland Tertiary Education Plan, Skills Victoria commissioned ACER to prepare a report providing statistical analysis of the local student profile. The report's analysis of On Track data found that, compared to other regions in Victoria, students in Gippsland are less likely to be studying a Bachelor degree and are more likely to be studying at a Certificate I–III level, in an apprenticeship, in part-time employment or looking for work.

With 35 002 Victorian Year 12 or equivalent completers and 3768 early school leavers surveyed in 2011, On Track is the largest post-school destinations survey in Australia. Further information about On Track is available from http://www.acer.edu.au/research/projects/on-track-annual-student-surveys/

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Assessing Student Learning: Why Reform is Overdue

Advances in our understanding of human learning require new approaches to assessing and monitoring student learning.

Much assessment thinking has changed little over the past fifty years. The field continues to be dominated by twentieth century introductory textbook concepts, including such dichotomies as formative versus summative assessment, criterion-referenced versus norm-referenced testing, quantitative versus qualitative assessment, informal versus formal assessment – distinctions that often hamper rather than promote clear thinking about assessment.

Assessment practice also has changed little over this period. Traditional, high-stakes examinations continue to dominate what is taught and learnt in many of our schools and universities. Greater use is now being made of promising new technologies, including banks of online assessment tasks, computer adaptive tests and technology-based assessments of 'new' life skills and attributes. However, while emerging technologies are capable of providing more innovative and informative explorations of student learning, much electronic assessment remains pedestrian and underpinned by traditional assessment thinking.

At the same time, progress in our understanding of learning itself is challenging long-held assumptions and pointing to the need for a paradigm shift in assessment theory and practice.

For example, substantial progress has been made in our understanding of human capacity for learning. It once was believed that individuals differed significantly in their capacity to learn. But research in neuroscience has shown how the plasticity of the brain enables almost all individuals to learn throughout the lifespan. This finding parallels the educational conclusion that, although students are at different points in their learning and are progressing at different rates, almost all students are capable of successful learning if motivated and if provided with appropriate learning opportunities and support.

Research also is making clear the enormous variability in students' levels of achievement and progress. Children begin school with very different social, cognitive, psychomotor and language development. Many of these differences do not disappear. In any given year of primary school, differences in reading and mathematics achievement are the equivalent of five or six years of school. And in some areas of learning and development, variability appears to increase across the school grades.

We also know that, in mixed-ability classrooms, students learn best when provided with learning opportunities matched to their varying interests and progress. Learning is maximised when tasks are targeted just beyond individuals' current levels of attainment – in the region where success is possible, but often only with scaffolding and support.[i]

An implication of these observations is that educational assessment is best conceptualised as a process of discovering where learners are in their learning and development. Although it is common to refer to the 'multiple purposes' of assessment, assessment has only one fundamental purpose: to establish where learners are in their progress at the time of the assessment. This information can then be interpreted and used in a variety of ways. For example, students' achievements can be interpreted by reference to the performances of other students nationally or internationally, by reference to achievement expectations or standards, or by reference to past performances to study trends or growth over time. The results of assessments can be used to inform starting points for teaching, to evaluate the effectiveness of educational programs and

interventions or to award qualifications. For teaching purposes, it sometimes is desirable to obtain more detailed information to diagnose specific student misunderstandings or errors, but once again, the single underlying purpose is to discover where learners are in their learning. Much unnecessary complexity has been introduced into the assessment literature through failure to recognise and begin with this simple truth.

The process of establishing where students are in their learning depends on a thorough understanding of the learning terrain through which they are progressing: typical paths of development; sequences in which understandings normally are established; and side-tracks in the form of common errors, learning difficulties and misunderstandings. Assessment as the discovery of where students are in their learning requires much more than familiarity with the intended curriculum. It depends on expert understanding of how learning occurs in a domain – a reference 'map' that is built from research and knowledge about learning itself.[ii]

Essential to this approach to assessment is an appreciation of learning as ongoing progress. At the heart of all educational effort is the intention of student growth, development or improvement. Rather than being limited to specific courses, semesters or years of school, the progress that students make usually occurs incrementally over extended periods of time. For example, in areas such as reading, mathematics and science, progress typically occurs across the entire period of schooling. The role of assessment should be to establish where students are on these long-term continua of learning and what progress they are making over time.

To establish where students are in their learning, evidence is required, usually in the form of observed performances on classroom activities or assigned assessment tasks. However, individual tasks are rarely, if ever, of intrinsic importance. Students may never again have to read and answer questions about the particular piece of text or solve the particular mathematics problems used in an assessment. Specific tasks are merely convenient but interchangeable vehicles for collecting evidence about what is really of interest – a student's underlying reading ability, for example, or level of achievement in an area of mathematics. And establishing where students are in their learning always involves an on-balance inference with an accompanying degree of uncertainty.

This conceptualisation of assessment stands in stark contrast to the traditional use of assessment to determine how much of what a teacher has taught each student has successfully learnt. Traditional assessments are made not in relation to an understanding of long-term learning progress, but in relation to a specific corpus of taught content. The onus is on students to learn this content and the role of assessment – whether during or upon completion of a course – is to judge how well they have done this. Conclusions about 'how much' students have learnt commonly are expressed as percentages, which may then be converted to grades to convey the extent of each student's success (or failure).

Under traditional approaches, it is common to treat 'curriculum, teaching and assessment' as separate activities. The role of teachers is to teach the curriculum, the role of students is to learn, and the role of assessment is to judge how much of the taught content students have learnt. By contrast, a view of assessment as professional investigation sees assessment as an integral part of good pedagogy. This view is consistent with the role of assessment in other professional work – for example in medicine and psychology – where the purpose is not so much to judge as to understand for the purpose of making informed decisions.

Research into learning highlights the need for investigative approaches to assessment. Learning is rarely, if ever, a process of passively taking in and storing new information. Even from a very young age, learning is a process of actively trying to make sense of the world. Learners interpret what they see and hear in terms of what they already know.

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They construct their own mental models and understandings which are sometimes inaccurate or only partially correct. And it is clear that misconceptions, if not identified and addressed, can be significant obstacles to further learning.[iii]

Research also shows that students sometimes can succeed on traditional forms of assessment while holding fundamental misconceptions. For example, physics students can sometimes recall formulae and substitute numerical values correctly to answer examination questions while holding fundamental misunderstandings about relationships between force and motion.

Studies comparing experts and novices in various fields show that what distinguishes experts from novices is not only extensive knowledge of a field, but also the frames of reference that experts have for organising and making sense of that knowledge. Experts have deep understandings of concepts, principles and big ideas in a field which allow them to see patterns in information and to transfer their knowledge to new and unseen contexts.

The implications of these research findings are that educational assessments must do more than establish whether students can reproduce what they have been taught, and teachers must be more than deliverers of curriculum content and judges of student success. The investigative process of establishing where students are in their learning must include an exploration of students' understandings of important concepts and principles. An appreciation of learners' own mental models and misunderstandings can provide important starting points for teaching (ie, assessments for learning). Assessments of factual and procedural knowledge will continue to be important, but perhaps more important in the future will be the assessment of students' abilities to organise and use this knowledge and to apply their understandings to the solution of complex, real-world problems.

In the past, assessment methods often have been more concerned with judging success and making reliable and fair comparisons of student performances than with investigating and understanding student learning. And the desire for large-scale implementation under standardised conditions, with a quick turnaround of results, often has resulted in assessments requiring only that students reproduce what they have been taught through the provision of 'correct' answers.

Some educators have reacted against assessments of this kind by arguing that 'authentic', in situ assessments are always preferable to assessments based on specially-designed assessment tasks, or that 'school-based' assessments made by classroom teachers are always preferable to externally-developed assessments. But these are over-reactions. When the purpose of assessment is to explore and understand where students are in their learning, there must be a willingness to use the methods best able to provide this information, whatever form they take.

Day-to-day observations made by classroom teachers generally provide the richest information for establishing where students are in their learning. Ideally, teachers would have intimate and precise knowledge of each student's progress and learning needs and would use that knowledge to personalise and focus their teaching efforts, often by grouping students with similar needs.[iv] As noted already, assessments of this kind depend on expert understandings of the relevant learning domain as well as professional skill in exploring learning progress.

Advances in technology are making it possible to incorporate professional knowledge of this kind into more sophisticated tools for investigating learning. Rather than testing only factual and procedural knowledge, these tools explore student thinking, including by testing hypotheses about misunderstandings and gaps in an individual's learning. Intelligent forms of assessment in the future will be less concerned with judging how much a student has learnt and more concerned with diagnosing and under-standing the details of an individual's learning.

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Research in neuroscience and cognitive psychology also is revealing the important role of emotions in learning.[v] People are more likely to learn and to remember if intrinsically motivated and emotionally engaged. In classroom settings, learning is promoted by 'learning cultures' in which all students are expected to learn successfully, are highly engaged and feel safe and supported in their learning. Conversely, negative emotions such as stress and fear of failure have been shown to impede learning and memory. In classroom settings, these emotions can be the result of 'performance cultures' in which learning is extrinsically motivated and students compete with each other for success.[vi]

Other research has shown the importance of positive attitudes and beliefs about learning. Learners are more likely to learn successfully if they believe that they are capable of learning – in other words, if they have positive views of themselves as learners. They also must believe that effort will result in success. Effective learners are more likely to monitor their own learning, to recognise what they do not know and to be proactive in seeking out what they need to make further progress. Learners are assisted in these processes by relevant and timely feedback that guides action and enables them to see the progress they are making over time.

These research findings relating to emotions, attitudes and beliefs have implications for how assessments of learning are conducted and how the results of assessments are reported and used.

Some forms of assessment promote 'performance' rather than 'learning' cultures. For example, one-off, end-of-course examinations usually are designed to judge and compare students on the amount of course content they have learnt – often for the purposes of ranking and selecting students for the next phase of education – rather than to monitor and understand learning progress. In such assessments, learning can be driven more by external pressure for results than by curiosity and intrinsic motivation. And this pressure often distorts teaching and learning by encouraging cramming and creating unacceptable levels of stress for students and their families.

The paradigm shift now required in assessment is from judging how much of a body of taught content students have successfully learnt to establishing where students are in their long-term learning and what progress they are making over time.

For this reason, one-off, high-stakes assessment events probably have a limited future in the assessment of student learning. In some contexts, there will continue to be a need to ensure that minimum performance standards have been met, but such assessments could be undertaken when learners feel ready to be assessed rather than in a single assessment event.

There are significant implications, too, for methods of reporting and monitoring student learning. Traditional reporting methods, such as percentages and grades, are more consistent with 'performance' than 'learning' cultures. Percentages and grades are used to describe how much of a body of taught content students have learnt. But these reporting methods are incapable of showing learning progress, and indeed usually mask progress. A student who receives a 'D' year after year is given no sense of the progress they are actually making. And worse, they are likely to infer from this outmoded method of reporting that there is something stable about their capacity to learn: they are a 'D' student.

It sometimes is argued that students and parents 'understand' A to E grades; but they do not because course grades usually do not represent consistent, interpretable levels of achievement. Grading is more appropriate for describing the quality of agricultural produce or the products of industrial manufacturing than for describing learning. The educational challenge is to develop ways of reporting that show where students are in their long-term learning, what progress they are making (ie, assessments of learning) and what might be done to support further learning.

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Finally, the uses to which assessments are put also can encourage 'performance' rather than 'learning' cultures. Assessments conducted to understand and promote student learning can be undermined and distorted when the results of those assessments are then used for other, unintended purposes. For example, external attempts to use test results to drive performance inevitably change classroom teachers' attitudes and behaviours. There is growing evidence that the linking of rewards and sanctions to test results not only fails to produce the desired improvements, but also results in a range of responses that are inconsistent with what we now know about effective teaching and learning.[vii]

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ACER Update

ACER Student Engagement & Experience Conference

ACER has teamed up with Criterion Conferences to present a two-day conference, Measuring and Improving Student Engagement and Experience: Increasing the quality of teaching & learning to encourage retention in higher education. Recent developments such as the advent of TEQSA and the Government's participation and attainment targets have brought the intersection between teaching, learning and student engagement to the fore.

With presentations from over a dozen experts from a range of higher education institutions and research organisations, this conference will address:

- The impact of the wider reform agenda on projects aimed at improving student engagement
- Debate of the effectiveness of measures and standards of higher education teaching and learning
- Issues with monitoring and strengthening quality student transitions across diverse access pathways
- Institutional strategies to support student cohorts most at risk of high attrition.

Pre- and post-conference workshops will explore how to use data on students' learning to improve education an on engaging postgraduate coursework students.

The conference runs from 21-24 November at Melbourne's Novotel on Collins. Discounted early bird registrations are available until 21 October. Further information about the conference is available from http://www.improvingstudentengagement.com

NAB Schools First winners announced

This month 110 schools were declared NAB Schools First award winners in recognition of their outstanding school-community partnerships. From a field of 863 high-quality applications, 50 schools won $25,000 Seed Funding Awards for partnerships in their early stages, and 60 schools won $50,000 Impact Awards for established partnerships that are having a demonstrated impact on students. All Impact Award winners are now eligible to become their respective State/Territory Impact Award winner and receive an additional $50,000 towards their school-community partnership. The State/Territory winners will be announced in October. Each State/Territory winner will then be in the running for the National Impact Award, to be announced on 24 November, where their total aggregate awards funding will be $500,000.

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Established in 2009, NAB Schools First is a partnership between NAB, ACER and the Foundation for Young Australians. ACER is responsible for judging all of the applications, a process that involves over 50 judges each year. ACER also provides individualised feedback for each unsuccessful school. This feedback provides schools with advice on not only how to improve their application but also how to strengthen and develop their partnerships. ACER conducts an evaluation of the NAB Schools First program each year to research the benefits of school-community partnerships. By the end of this year, the program will have awarded $15 million to 310 schools around Australia. This year's award announcements coincides with confirmation that the program will continue for a further three years. For more information visit http://www.schoolsfirst.edu.au

ACER Institute to host Bill Lucas seminar

In October 2011 the ACER Institute in conjunction with Tenderbridge will host a seminar presented by University of Winchester Professor of Learning Bill Lucas, on the topic New Thinking about Intelligence and Learning: New ideas for resourcing new thinking in schools. A former school leader and best-selling author, Lucas has helped to create five organisations: Learning through Landscapes, Campaign for Learning, The Talent Foundation, The Centre for Real-World Learning and, most recently, the English Project. During his seminar, Lucas will share his experiences of turning good ideas into resources - money, time and talents. He will discuss well-tested practical ideas drawn from across the world designed to put educational visions into practice and will suggest how educators might access funds to do this. For more information on this seminar or to register your interest please visit http://www.acerinstitute.edu.au/

CEET Annual Conference

ACER Research Director Dr Phillip McKenzie and ACER Senior Research Fellow Justin Brown will present on the topic 'The Changing Destinations of Low SES School Leavers – the Contribution of VET in Schools' at the 15th annual conference of the Monash University Centre for the Economics of Education and Training (CEET), on Friday 28 October 2011 at Ascot House in Ascot Vale, Melbourne. The theme of the conference is The contribution of Vocational Education and Training (VET) to a more inclusive Australia. Further information about the conference is available from http://www.edu.monash.edu/centres/ceet/conferences/2011.html

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